

## CLAIMS

1. A gas injector for nitrogen oxide-reducing firing of regeneratively heated industrial furnaces comprising a gas supply pipe (1) and a mouth (2), wherein the connection thereof forms a long diffuser (3) with a free jet opening angle, characterised in that the ratio of the diameter of the mouth (2) and the diameter of the gas supply pipe (1) is smaller than three.

2. A gas injector as set forth in claim 1 characterised in that a central nozzle pipe (4) with a mouth forming a free jet opening angle is arranged within the gas supply pipe (1), forming an annular gap (9) for guiding a partial gas flow between the gas supply pipe (1) and the central nozzle pipe (4), in such a way that the notional prolongation of the generatrix (7) of the central nozzle pipe mouth (8) goes into the generatrix of the long diffuser (3).

3. A gas injector as set forth in claim 2 characterised in that a closure and regulating device for partial gas flow adjustment is arranged downstream of the central nozzle pipe (4).

4. A gas injector as set forth in claim 3 characterised in that the closure device comprises two separate valves which are arranged in an overall gas supply pipe (17) and a secondary gas supply pipe (15) which is branched therefrom and which directly charges the central nozzle pipe (4).

5. A gas injector as set forth in claim 2 characterised in that the closure device is in the form of a cone (11) which is axially displaceable on the outer periphery of the central nozzle pipe (4) and which co-operates with a conical surface of the inside wall of the gas supply pipe (1).

6. A gas injector as set forth in one of claims 3 through 5 characterised in that the closure device (11; 16) is arranged set back in opposite relationship to the flow direction from the mouth (8) of the central

nozzle pipe (4) by more than five times the inside diameter of the central nozzle pipe (4).

7. A gas injector as set forth in one or more of the preceding claims characterised in that the mouth (2) of the long diffuser (3) is provided with a water-cooled ring (5) at its outside periphery.

8. A gas injector as set forth in claim 7 characterised in that the water-cooled ring (5) is arranged separately.

9. A gas injector as set forth in claim 7 or claim 8 characterised in that the water-cooled ring (5) is rotatable about the axis of the gas injector.

10. A gas injector as set forth in one or more of the preceding claims characterised in that the long diffuser (3) and the ring (5) are arranged together in a burner insert opening (6) enlarging in opposite relationship to the gas flow direction, in such a way that the spacing between the water-cooled ring (5) and the burner insert opening (6) is at a minimum and the axis of the gas injector is rotatable about the center point of the mouth (2).